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EXAMINER				
UHLENHAEKE, JASON S				
ART UNIT		PAPER NUMBER		
2853				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/560,971

Applicant(s)

EVE, RICHARD WILLIAM

Examiner

JASON S. UHLENHAKE

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 36-69 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 36-69 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/S5108)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date 12/16/2005

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 36-39, 42, 46-47, 50, 53, 57, 58, 62-64 are rejected under 35

U.S.C. 102(b) as being anticipated by Shioh et al (U.S. Pat. 6,082,851).

Shioh discloses:

- ***regarding claims 36, 62***, inkjet device and method for containing, degassing and supplying ink, comprising: means for supplying a gas to the container to bubble through the ink
- a controller (supply system control portion) for controlling at least the gas supplying means to operate in at least two modes including: a degassing mode wherein the pressure in the container is at a degassing pressure and wherein the gas supplying means is controlled to supply the gas at a pressure above the degassing pressure to bubble through the ink ; and an ink supplying mode wherein the pressure in the container is at an ink delivery pressure (Figure 3; Column 7, Lines 37-63)
- ***regarding claim 37***, wherein the container is arranged for supplying ink to a print head (Figure 3; Abstract)
- ***regarding claim 38***, a print head (205a, 205b) remote from the container (Figure 3)

- **regarding claim 39**, means for setting the pressure in the container wherein the controller (supply system control portion) is arranged to control the pressure setting means to set the pressure in the container to the degassing pressure or ink delivery pressure according to the mode (Column 7, Lines 37-63)

- **regarding claim 42**, wherein the degassing pressure is lower than the ink deliver pressure (Column 7, Lines 36-56)

- **regarding claim 46**, at least one print head and a local ink refill system associated with the or each print head; wherein the container is arranged to supply ink to the at least one local ink refill system in the ink supplying mode (Figure 3; Column 7, Lines 51-53)

- **regarding claims 47, 68**, wherein the degassing pressure is lower than atmospheric pressure, and the gas supplying means is arranged to supply gas, preferably air, substantially at atmospheric pressure (Column 6, Lines 12-16; Column 7, Lines 44-47)

- **regarding claim 50**, a bubble bursting means between the ink container and the pressure setting means (Column 8, Lines 50-53; Column 9, Lines 5-10)

- **regarding claim 53**, wherein the gas supplying means is arranged to supply gas to bubble through a major portion of the ink (Column 2, Line 66 – Column 3, Line 2)

- **regarding claim 57**, a plurality of inkjet devices (Column 5, Lines 18-25)

- **regarding claim 58**, wherein each inkjet device contains ink of a different color (Column 13, Lines 60-63)

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- **regarding claim 63**, setting the pressure-in the container to the degassing pressure or the ink delivery pressure depending on the mode (Figure 3; Column 7, Lines 37-63)
- **regarding claim 64**, wherein the degassing pressure is lower than the ink deliver pressure (Figure 3; Column 7, Lines 37-63)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shioh et al (U.S. Pat. 6,082,851) in view of Thielman et al (U.S. Pat. 6,547,377)

Shioh does not disclose expressly the following:

- **regarding claim 40**, the temperature and pressure in the degassing mode and the gas solubility are selected so that the equilibrium mass proportion of dissolved gas in the ink in the degassing mode is no more than 80% of the saturation mass proportion at the ink delivery pressure and temperature
- **regarding claim 41**, wherein the equilibrium mass proportion of dissolved gas in the ink in the degassing mode is no more than 60% of the saturation mass proportion at the ink delivery pressure and temperature

Thielman discloses:

- **regarding claim 40**, the temperature and pressure in the degassing mode and the gas solubility are selected so that the equilibrium mass proportion of dissolved gas in the ink in the degassing mode is no more than 80% of the saturation mass proportion at the ink delivery pressure and temperature (Column 6, Lines 10-43)

- **regarding claim 41**, wherein the equilibrium mass proportion of dissolved gas in the ink in the degassing mode is no more than 60% of the saturation mass proportion at the ink delivery pressure and temperature (Column 6, Lines 10-43)

At the time the invention was made it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of Thielman into the device of Shioh, for the purpose of reducing air accumulation in ink jet print heads

Claims 43-45 and 65-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shioh et al (U.S. Pat. 6,082,851) in view of Kashimura et al (U.S. Pat. 6,007,193)

Shioh does not disclose expressly the following:

- **regarding claims 43, 65**, means for setting the temperature in the container to an elevated degassing temperature

- **regarding claims 44, 66**, means for cooling the ink to an ink delivery temperature below the degassing temperature

- **regarding claims 45, 67**, wherein the cooling means is outside the container

Kashimura discloses:

- **regarding claims 43, 65**, means for setting the temperature in the container to an elevated degassing temperature (Abstract; Column 6, Lines 50-58; Column 9, Lines 31-40)
- **regarding claims 44, 66**, means for cooling the ink to an ink delivery temperature below the degassing temperature (Abstract)
- **regarding claims 45, 67**, wherein the cooling means is outside the container (Column 3, Lines 28-50; Column 4, Lines 54-64)

At the time the invention was made it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of Kashimura into the device of Shioh, for the purpose of removing air bubbles from the ink

Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shioh et al (U.S. Pat. 6,082,851)

Shioh discloses the claimed invention except for wherein the degassing pressure is below 900mbar. It would have been obvious to one having ordinary skill in the art at the time the invention was made to maintain the degassing pressure below 900mbar, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shioh et al (U.S. Pat. 6,082,851)

Shioh discloses the claimed invention except for wherein the degassing pressure is below 600mbar. It would have been obvious to one having ordinary skill in the art at the time the invention was made to maintain the degassing pressure below 600mbar, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Claims 51-52, 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shioh et al (U.S. Pat. 6,082,851) in view of Lye et al (U.S. Pat. 6,726,754)

Shioh does not disclose expressly the following:

- ***regarding claim 51***, wherein the gas supplying means is arranged to supply a gas less soluble in the ink than air
- ***regarding claim 52***, wherein the gas is Helium
- ***regarding claim 69***, wherein the gas supplied is less soluble in the ink than air

Lye discloses:

- ***regarding claim 51***, wherein the gas supplying means is arranged to supply a gas less soluble in the ink than air (Column 1, Lines 28-40)
- ***regarding claim 52***, wherein the gas is Helium (Column 1, Lines 28-40)
- ***regarding claim 69***, wherein the gas supplied is less soluble in the ink than air (Column 1, Lines 28-40)

At the time the invention was made it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of Lye into the device of Shioh, for the purpose of degassing inks.

Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shioh et al (U.S. Pat. 6,082,851) in view of Dowell (U.S. Pat. 6,773,097)

Shioh does not disclose expressly the following:

- ***regarding claim 54***, wherein the gas supplying means includes an inlet adjacent the base of the container so that gas introduced bubbles upwardly through the container

Dowell discloses:

- ***regarding claim 54***, wherein the gas supplying means includes an inlet (270) adjacent the base of the container so that gas introduced bubbles upwardly through the container (Figures 5-6; Column 6, Line 64 – Column 7, Line 20)

At the time the invention was made it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of Dowell into the device of Shioh, for the purpose of reducing the negative pressure inside the container

Claims 55-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shioh et al (U.S. Pat. 6,082,851) in view of Pawlowski Jr. et al (U.S. Pat. 5,852,459)

Shioh does not disclose expressly the following:

- **regarding claim 55**, wherein the ink container has a greater height than at least one of its horizontal dimensions

- **regarding claim 56**, wherein the ink container is generally columnar having a greater height than any horizontal dimension

Pawlowski discloses

- **regarding claim 55**, wherein the ink container has a greater height than at least one of its horizontal dimensions (Figure 37)

- **regarding claim 56**, wherein the ink container is generally columnar having a greater height than any horizontal dimension (Figure 37)

At the time the invention was made it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of Pawlowski into the device of Shioh, for the purpose of maximum utilization of space (Column 25, Lines 51-65)

Claims 59-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shioh et al (U.S. Pat. 6,082,851) in view of Thielman et al (U.S. Pat. 6,467,861)

Shioh does not disclose expressly the following:

- **regarding claim 59**, comprising at least one filter positioned to filter gas flowing from the gas supplying means to the ink container

- **regarding claim 60**, a restriction means for restricting the flow of gas from the gas supplying means to the ink container

- **regarding claim 61**, wherein the restriction means is provided by the at least one filter

Thielman discloses:

- ***regarding claim 59***, comprising at least one filter positioned to filter gas flowing from the gas supplying means to the ink container (Column 8, Lines 1-15)
- ***regarding claim 60***, a restriction means for restricting the flow of gas from the gas supplying means to the ink container (Column 8, Lines 1-15)
- ***regarding claim 61***, wherein the restriction means is provided by the at least one filter (Column 8, Lines 1-15)

At the time the invention was made it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of Thielman into the device of Shioh, for the purpose of preventing air from entering the ink supply line and potentially damaging the print head

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON S. UHLENHAKKE whose telephone number is (571)272-5916. The examiner can normally be reached on Monday-Friday 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JASON S UHLENHAKE/
Examiner, Art Unit 2853
February 26, 2008

/Julian D. Huffman/
Primary Examiner, Art Unit 2853